

674.8

1914

1917



74.8

JUL 7 1919



California REDWOOD on the farm

For
everything
the Farmer
builds -
It's the Best





THE magnificent Redwoods—Nature's lumber masterpiece. Awe-inspiring in its majestic grandeur, the Redwood is king of kings in Treeland. No other tree grows so big, so old and so imperial. The Redwoods are descendants of trees existing in great forests before the Glacial Age, but which perished from earth in that upheaval, except for a limited area in California. They are the only known living connection between today and the unfathomed ages before the coming of man, when plant and animal life is represented by geologists to have been bigger and more imposing than similar life in the present period

10.89-13.809 TLF

Build Wisely With Wood

Wood used on the farm should

Resist Rot

Retard Fire

Last Without Paint

Be Light and Strong

Easy to Work

and

Not Shrink or Warp

Then Use Redwood for

All Moist Contacts	Hog Houses
Barn Boards	Hot Beds
Barn Doors	Implement Sheds
Bee Hives	Incubators
Benches	Irrigation Gates
Brooders	Lagging
Ceiling	Manure Boxes
Cesspool Lining	Mouldings
Columns	Mud Sills
Concrete Forms	Outhouses
Cribs and Bins	Partitions
Cribbing	Pergolas
Curbing	Porch Rails
Door and Window	Porticos
Casings	Poultry Houses
Doors	Repairs
Drain Boxes	Rot Resistance
Exterior Trim	Roofing (shingles and shakes)
Farm Signs	Septic Tanks
Feed Racks	Sheathing
Feed Troughs	Siding
Fencing	Silos
Fence Posts	Stakes and Props
Fire Protection	Starting Boxes
Flower Boxes	Stock Tanks
Flume	Sullage Receptacles
Framing	Supply Tanks
Fruit Trays and Boxes	Tinkering
Garages	Water Pipe
Greenhouses	Well Casing
Gutters	Well Houses

And all interior finish in the farm house

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R E S I S T S F I R E

The oldest living thing in the world

REDWOOD is lumber from the “big trees” of California—the eighth wonder of the world. Scientists call them *Sequoia sempervirens*, which, when translated into our every-day tongue, means “Sequoia ever living.” Sequoia is an Indian name—the name of a chief of great power and influence among his people, and therefore is typical of greatness.

These trees are the oldest living things in the world, and many were sturdy saplings 2000 years ago, when the three wise men followed the Star of Bethlehem to the manger wherein lay the Christian Saviour.

They are wonderful trees, these Redwoods, and they produce a lumber with remarkable resistance to rot and fire.



The “undercut”—the first step in the felling of giant Redwoods. Guess the diameter of this one

C A L I F O R N I A

In fact, the real secret of the "big trees" of California is defiance of decay and fire.

The *Sequoia gigantea* are a few isolated groves of enormously big trees in the Sierra Nevada Mountains, that range in age from 2,000 to 6,000 years. They are first cousins to the Redwoods, and these patriarchs of the forest, despite their great age, are regularly bearing and ripening cones. These trees are set apart in protected preserves for the enjoyment of tourists.

The Redwoods, from which commercial lumber is cut, grow in heavy stands along the Pacific Coast line in California from Monterey Bay to Oregon, in what is known as the fog belt. They thrive only in excessive moisture, and do not grow inland farther than thirty to forty miles.

They grow from 5 to 25 feet in diameter, and from 75 to 300 feet in height. The bark is distinctive, being cinnamon brown in color and fluted from the base to the top of a tree like a Corinthian column, which makes the magnificent Redwood forest as impressive as the cold, silent walls of an ancient cathedral. The floor of the forest is carpeted with wonderful ferns, and the beautiful rhododendrons lend a flash of color—when touched by the golden sunbeams, a sight never to be forgotten.



The huge butt logs weigh from 30 to 50 tons. Some are split with gunpowder so they can be handled at the mill. The biggest band saws will only cut a 12-foot log

R E S I S T S F I R E

Redwood is a fire protection

FARM buildings are built of wood. From the home of the farmer to the shelter in the hog pen, wood is cheapest, the easiest to handle and most satisfactory. But wood will burn; so the farmer must keep his weather eye open for the menace of fire.

For convenience, Mr. Farmer, you group your buildings to work your farm to best advantage. In doing this you sometimes subject buildings to fire exposure. Fire on the farm is usually disastrous; so it pays the farmer to build with wood

hard to ignite,
slow to burn
and
easy to put out.

The photograph of the Bellevue Apartments shown below tells in a picture how Redwood resists fire. A paint shop alongside this apartment building was completely destroyed by fire. The big apartment was afire from the ground to the eaves, but it was saved because it was covered with Redwood siding.



Bellevue Apartments, Berkeley, Cal. The shavings siding is Redwood, which was subjected to a fierce fire which totally destroyed the adjoining building, a paint shop. Redwood siding saved this building.

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While the siding charred, and, for appearance sake, was replaced, it represents a minimum of property loss, while at the same time affording a maximum of safety to tenants.

If you can save your home, your barn, your silo or other farm buildings, if built of Redwood, from a similar loss in case of fire, it's a mighty good investment, isn't it?

The strongest possible recognition of this fire-resistance quality will be found in the following resolution passed by the Building Committee appointed by the Mayor of San Francisco, following the great fire in 1906, to provide and regulate temporary housing conditions for the refugees:

"Resolved, that no permits shall be given at the present time for the construction of any buildings in San Francisco, but owners of property will be allowed to erect upon their premises one-story buildings constructed of galvanized iron or Redwood, without a permit."

Of all woods available only Redwood could be used.

Why?

We will let Chief Engineer P. H. Shaughnessy, of the San Francisco Fire Department, give the reason—

"After an extended experience of more than 22 years in active connection with the San Francisco Fire Department, the results of my observations convince me that under similar conditions of heat exposure Redwood lumber ignites much less quickly and burns much more slowly than . . . other resinous soft building woods with which I am familiar; and I am also convinced that when Redwood becomes ignited the fire is much more easily extinguished than in the combustion of . . . and other soft building woods. The reason of these differences, I think, is largely owing to the fact that Redwood is well known as a non-resinous wood."

R E S I S T S F I R E

The Test by Fire

Redwood is fire tested in the log before it gets to the market as commercial lumber. Because of the enormous size of the Redwood tree the logs are very heavy—a 16-foot butt log weighing from 30 to 50 tons, according to the size of the tree. The butt log is the first cut above the ground. After the trees are felled the bark is peeled, top branches cut off, and this litter, together with undergrowth, is a serious interference. To get rid of this “slash,” as the logger calls it, he sets it on fire. The giant Redwood logs come out of this terrific heat with only a slight surface scar.

California Redwood is the only timber that can be logged in this way.

Why It Resists Fire

Why is Redwood fire resistant? Because it has been made so by nature. It does not contain resin or pitch, which are the inflammable elements in other wood. Redwood neither attracts nor feeds fire. Redwood is porous and therefore quickly absorbs water. This accounts for its unwillingness to burn when wet and the ease with which fire is put out.



The use of Redwood for your farm buildings may save them from destruction as in the case of this building in the conflagration at Cloverdale, Cal.

Redwood resists rot when exposed

RESISTANCE to rot adds to the value of wood used on the farm. The economy is equal to multiplying the cost of using a quick-rotting wood by the number of years that Redwood will last for the same purpose. If it costs \$500 to build a barn of a wood that will rot out in 10 years, and a Redwood barn will last 50 years—the saving is \$2,000, because it is unnecessary to rebuild the barn four times at \$500 each.

Does that saving, Mr. Farmer, justify you paying a slight premium for Redwood, if necessary?

Redwood contains a natural preservative. The living power of Redwood is so great that trees blown over in the woods long before Columbus discovered America, have been sawn into commercial lumber! In one instance (shown below) such a fallen tree was



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found underneath another big Redwood that grew astraddle the uprooted giant. When the standing tree was cut its rings showed it to be nearly 1,000 years old, which meant that the uprooted tree had gone down 1,000 years ago. This fallen tree was 600 years old when it fell, yet the log was sound and healthy.

The natural preservative in Redwood not only protects it from decay, but rot-producing fungus growths so common in other woods do not attack Redwood.

What Uncle Sam Says

Read what the experts of the Bureau of Forestry of the U. S. Government say of Redwood's living power, in Bulletin No. 38:

"Redwood timber possesses lasting qualities scarcely equaled by any other wood. Although very light and porous, it has antiseptic properties which prevent the growth of decay-producing fungi. So far as is now known, none of the ordinary wood-rotting fungi grows in Redwood timber. This is an exceedingly valuable property, which should extend the use of the



This Redwood post is located on the Petaluma and Santa Rosa electric line in Sonoma County, Cal. When the line was built through the ranch of H. Meehan, a pioneer, the post was moved off the right of way. It was found absolutely free from rot although it had been set over fifty years before. It stands today a tribute to a Californian's love of his native Redwood and its wonderful living power.

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wood for all kinds of construction work.

"It is because of its resistance to most forms of decay that Redwood reaches such a great age. A remarkable fact to be noted is that the innermost rings of most of the trees are as sound now as when first formed."

Californians have recognized this rot-resisting property in Redwood from the time of the first settlers—the Russians—and there are many cabins in the Redwood belt, still inhabited, that were built as far back as 1811. Fence posts dug out of the ground after 75 years show no rot. Redwood railroad ties that have been under the rails of the Southern Pacific for 55 years are still doing service in the side tracks. Redwood tunnel and mining timbers are figured by engineers to give 20 to 25 years' service. For mud sills, drain boxes, well casings, flumes, pipe lines,



When the pulley shafts of the Pacific Tank & Pipe Company, San Francisco, persisted in getting out of alignment, investigation disclosed the 12" x 12" posts supporting the roof had rotted at the ground line, and vibration caused complete separation. Fortunately, these timbers were encased in 1" x 12" Redwood boards, originally intended to protect the posts (which were not Redwood) against decay. The Redwood boards were sound and actually carrying the weight intended for the posts! The building was only ten years old

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tanks, coffin boxes, grape stakes and other uses where wood comes in contact with moist soil Redwood is always specified because it is dependable.

How to Use Redwood

For rough outside uses Redwood is splendidly adapted. In such service it makes little difference whether the Redwood is dry or not.

For interior and exterior finish, however, Redwood should always be thoroughly seasoned—which means absolutely dry through and through.

It is, of course, not wise to put a sappy piece of Redwood—or of any other kind of wood—in the ground, or on the ground, unless the remainder of the piece that does not contain sap is of sufficient size to do the work required; wherever used, Redwood sapwood is as durable as the heart wood of any other construction lumber. The sapwood in a tree has low vitality or living power, due to the fact that it is in a growing stage and is not mature. Sapwood in Redwood lumber



A Redwood pipe line—they build them from 10 inches to 13 feet in diameter

can be readily seen in the difference of color. The sap is white, while the heart wood is reddish.

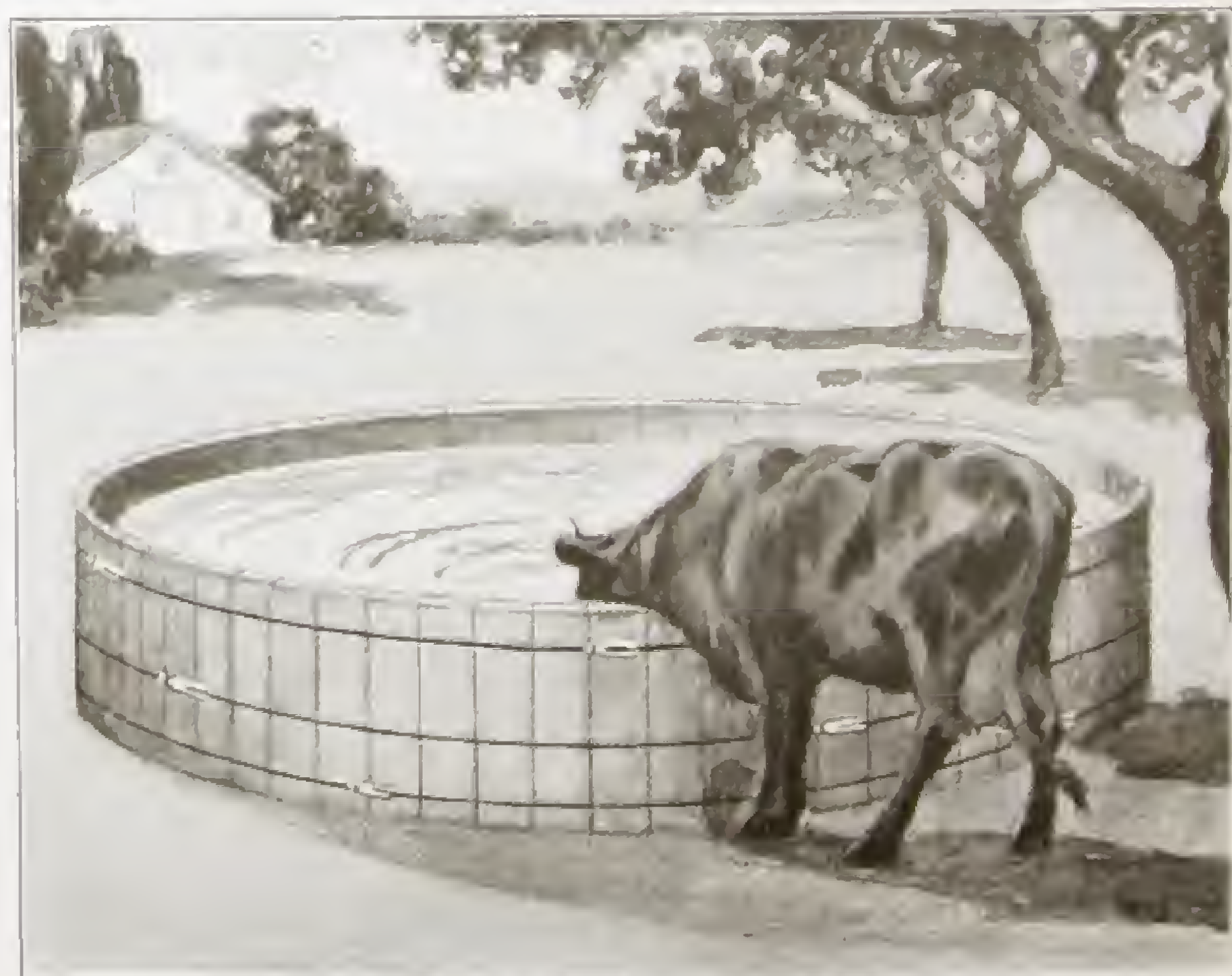
The Whiting Wrecking Company, Los Angeles, California, in wrecking a building for the new annex of the Alexandria Hotel, found the foundation consisted of 3-inch x 12-inch Redwood plank, laid on the ground. Although down 35 years the Redwood plank was sound, and was ripped into 3-inch x 4-inch pieces and used for fence posts.

Preservatives Unnecessary

Redwood does not have to be coated with creosote or tar—nature has provided its own preservative. The natural preservative in Redwood permeates all parts of the wood. Preservatives that are put on other lumber to increase its life in exposed uses, by brushing, or "dipping," protect only the external surface and cannot prevent decay from the inside.

For siding, sheathing, roofing (shingles or shakes), window and door frames, exterior trim and other uses exposed to the weather Redwood resists decay.

Not only does Redwood resist rot, but it defies the attack of acid and alkalis. For this reason it is used for tank stock where corrosive acids and



A typical Redwood stock tank—the kind that last the longest and give the least trouble

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alkalis are necessary in the manufacturing process. Redwood stave pipe conveys these destructive chemicals where other materials fail.

Best for Stock Tanks

For supply tanks, stock tanks, feed troughs, pipe lines, etc., Redwood is especially adapted because of its resistance to rot in contact with moisture or wet soil. Painting is unnecessary.

Redwood tanks may be "cured" before using. The simplest and quickest way to cure a Redwood tank is to fill it with water and add slacked lime, using one bucket of slacked lime to about 200 gallons of water. Let it stand 48 hours. Then thoroughly scrub the tank, refilling it with water, which should stand for 12 hours. Thoroughly rinse the tank before using.

Redwood for this equipment on the farm cuts out continuous trouble and expense in repairs due to rot. In addition to Redwood having such wonderfully long life, it is light in weight and can be easily handled by farm labor.

Build your farm tanks, pipe lines, feed troughs of Redwood and you build to last a life-time.



Here is much Redwood pipe used for its value as a part of the underground public water distribution system at Fort Bragg, Cal. After being taken as they were piled, as seen above, for 10 years. They were then bought by a rancher and installed on his ranch for a water supply. These pipes are still living, healthy Redwood and the purchaser says he believes they will last new pipe time for his purpose!

D E F I E S R O T

Redwood

shingles and shakes

are the best



EDWOOD shingles or shakes as a roof or side-wall covering give long life and fire protection.

No other shingle, or substitute roof covering gives the ideal combination of rot resistance and fire retardance, with the additional merit of being rust proof and free from tar, gum or any other substance to melt in the sun and fill gutters, water pipes or drains.

Always lay Redwood shingles or shakes with zinc-coated cut iron nails. This will prolong the life of your roof many years. The ordinary steel shingle nail will rust out while the shingle itself is still in first-class condition. A Redwood shingled roof, laid with the right kind of nails, will give satisfactory service from 30 to 50 years.

The Redwood shake is a 36-inch long shingle, 6 inches wide, and $\frac{1}{4}$ of an inch uniform thickness. For best service on roofs, one-third to one-quarter pitch, they may be laid 24 inches to the weather, which means an overlap of 12 inches. When the roof is more than quarter pitch, a 6-inch overlap, which gives a 30-inch weather exposure, will suffice, although a 12-inch overlap is recommended. There is no set rule for laying shakes to the weather, and the overlap can be varied to suit local conditions.

The Redwood shake, which may be either split or sawn, is a typical California covering, and ideal for everything from bungalow to barn. Both shakes and shingles are used extensively for side walls because of the artistic effects produced, as well as being a splendid weatherproof covering.

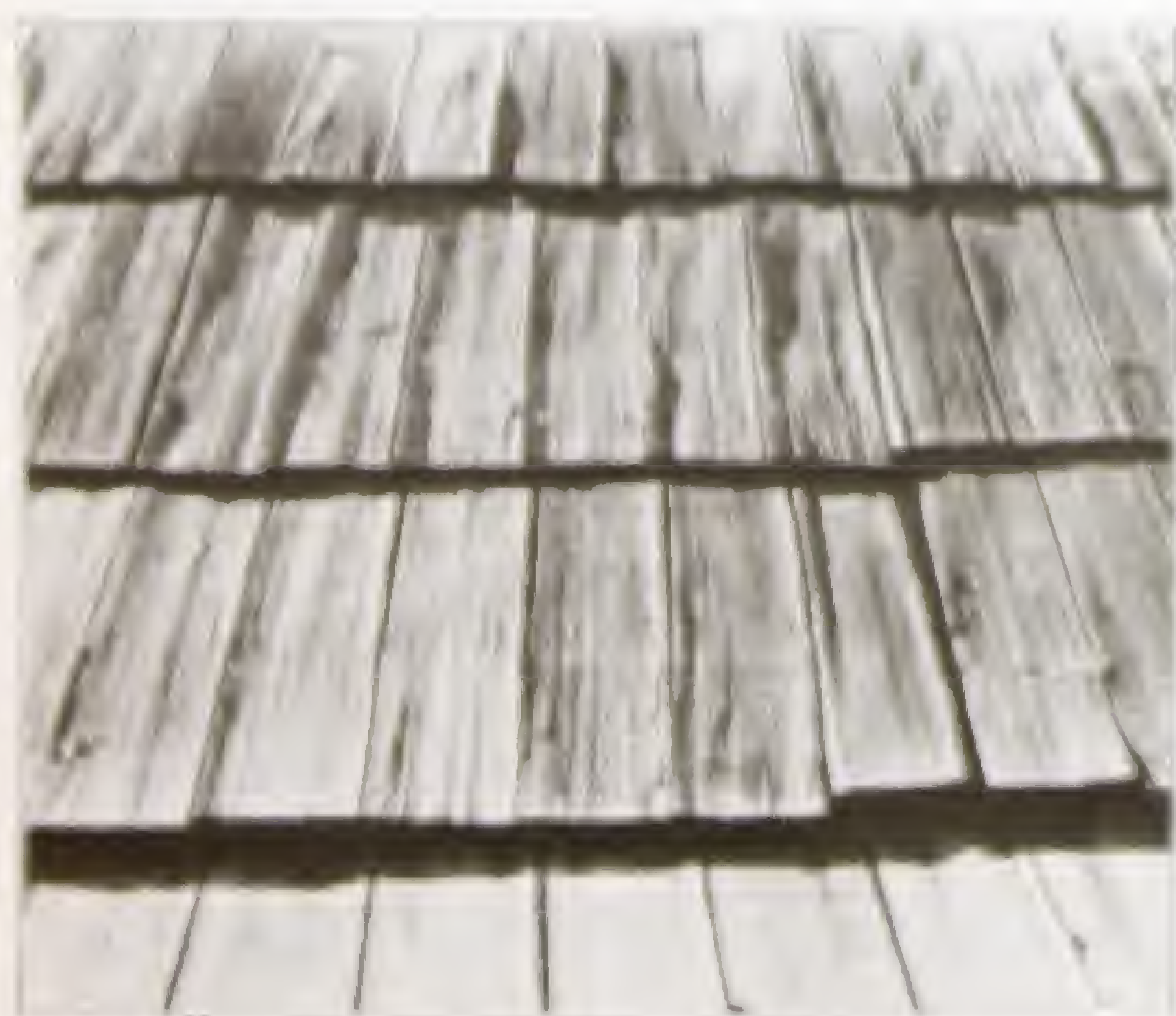
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The Redwood shingle is sufficiently elastic to shape it in a reverse curve, if desired. This is done by soaking it in hot creosote before laying. In this way shingles can be bent around a curve. In addition to giving it pliancy, the shingles can be laid true to the form desired, with assurance that they will hold their shape and the design of the roof indefinitely. In laying roofs this way it is necessary to use nails liberally.

Many homes in California have what are known as "thatched" roofs. This is a raised effect produced by increasing the number of layers of shingles. They are laid from 3 to 8 thick in the "thatch," according to the height desired.

You can buy Redwood shingles in two grades, No. 1 Clear and ★A★. The former is a carefully selected vertical grain shingle, free from all defects, and is used invariably on coverings where service demands first consideration. The latter is a 10-inch clear butt shingle, "slash" grain being no defect, and it is recommended for side walls rather than for roofing.

In 1893 Redwood shingles were taken from the roof of General U. S. Grant's headquarters, at Fort Humboldt, California, where they had been for 40 years. The wood was absolutely sound and without a trace of rot, although the



A Redwood shingle roof—the style that is good for a half century and more of weather-tight protection.

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shingles were worn thin by wind-driven sand.

A typical example of Redwood shingle service is found in the following letter from A. Cottrell, Eureka, Cal.:

"In the winter of 1870 I shingled my house at Eureka with Redwood shingles. They were first painted about the year 1880, and again about 1895. The shingles were not removed from the roof of the house until September, 1913. They were in service 42 years, and, on being taken off the roof, were found to be in first-class condition."

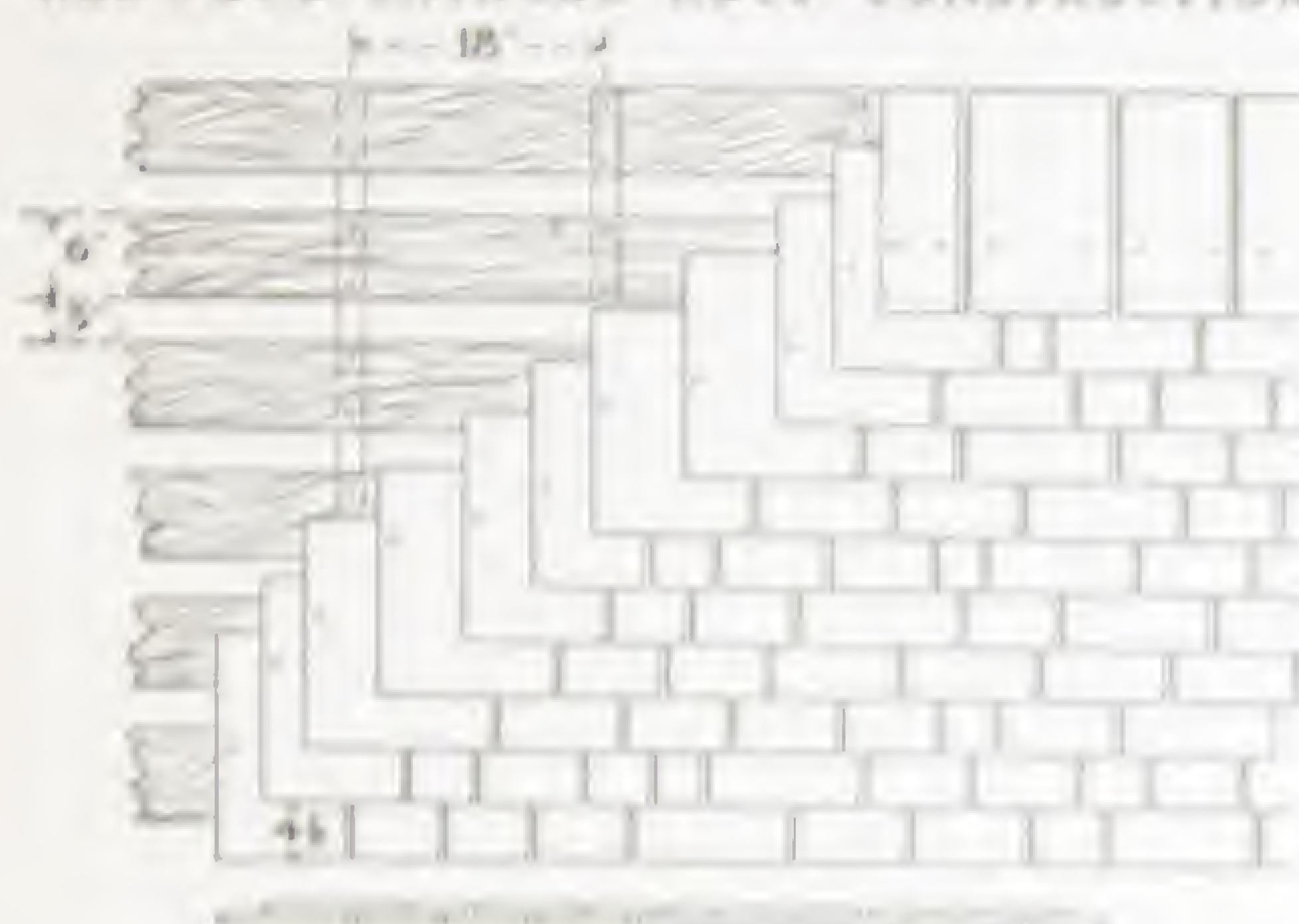


Mission Dolores, San Francisco. Built by the Spanish padres in 1776, the year the Declaration of Independence was signed. The Redwood trusses are mortised and bound with rawhide thongs, but after the big earthquake of 1906 they were bolted as a precautionary measure. The Redwood heavy rafters too are still in perfect condition after 141 years service

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R E D W O O D

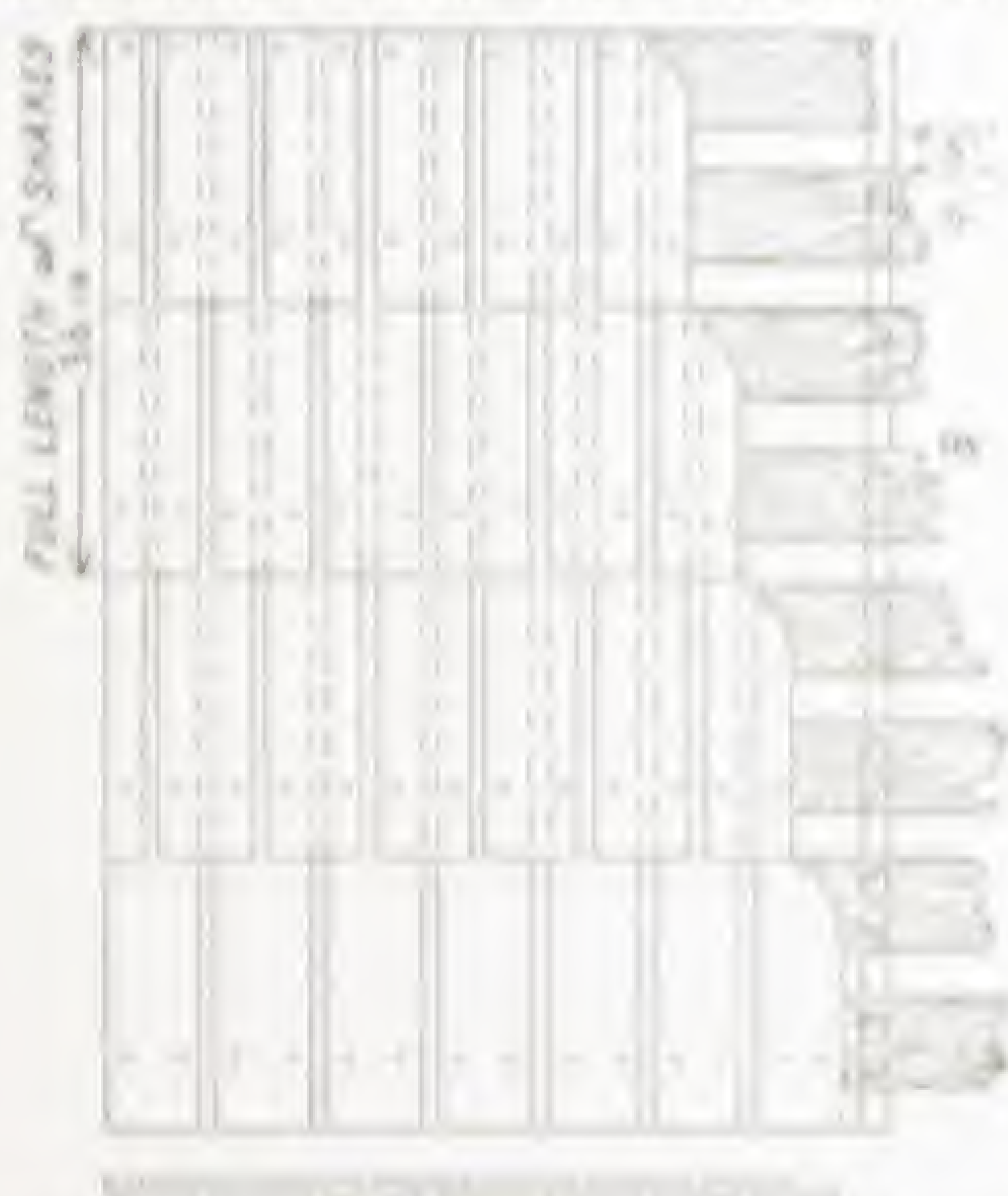
REDWOOD SHINGLE ROOF CONSTRUCTION



EDGE VIEW OF SHINGLES

Rafters 18" on centers. Shingling boards 4" x 6" laid 4" on centers. Redwood shingles laid 3/4" to weather. Small spikes used only.

SAWN SHAKES FOR SIDE CONSTRUCTION



Side View Shows Vertical Arrangement of Sawn Shakes, Walling Wall.

4" x 6" sawn shakes laid 4" on centers. Shingling 4" on centers. Shingling 4" x 6" on centers. Small spikes used only.

SHAKE ROOF CONSTRUCTION



Shingles laid in vertical rows on walls. 4" on centers. Small spikes used only.

D E F I E S R O T

A strong wood for its weight

SEASONED Redwood is one of the strongest woods for its weight. Dry Redwood weighs 26.2 pounds per cubic foot—slightly less than Cypress, which weighs 27.6. It is equal in strength to Cypress, and its breaking strength, according to U. S. Government figures, is 62 per cent of that of White Oak, which is one of the strongest and toughest of American woods.

The standard of lumber weight and measure is based on a "board-measure" foot. A board-measure foot means a piece one inch thick and 12 inches square. One-inch boards, in the rough, dry, weigh 2400 pounds per 1000 board-measure feet. The same boards dressed smooth on two sides would weigh 2000 pounds, and if dressed four sides will weigh 1800 pounds.

The hardest possible service to which wood can be subjected is the railway tie. It is not only in constant contact with moist soil, but it must stand the strain and stress of swiftly moving heavy trains. In his report on "Timber: An Elementary Discussion of the Characteristics and Properties of Wood," to



A Southern California 45-year-old Redwood barn with shake roof. A 45-year water-tight barn that requires no attention is a pretty good one, isn't it?

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the Division of Forestry, U. S. Department of Agriculture, Filibert Roth, Special Agent in Charge of Timber Physics, gives the following table on the—

Life of Railroad Ties

	YEARS
<u>Redwood</u>	<u>12</u>
Black Locust	10
Cypress and Red Cedar	10
Oak (White and Chestnut)	8
Chestnut	8
Tamarack	7 to 8
Cherry, Black Walnut, Locust	7
Elm	6 to 7
Long Leaf Pine	6
Hemlock	4 to 6
Spruce	5
Red and Black Oaks	4 to 5
Ash, Beach, Maple	4

Grows Stronger with Age

Redwood actually grows stronger with age! This has been demonstrated by tests made at the University of California. Timbers taken from a house built 37 years ago, on the Campus of the University, at Berkeley, were tested and found to be actually stronger than the day when the building was erected. There wasn't the slightest trace of decay in these timbers, and when sawn the wood was virile and healthy in color and texture. Air seasoning had taken place under the most favorable conditions.

The 37-year Redwood had a longitudinal crushing strength one-quarter greater than Redwood which had been air seasoned two years.

How to paint Redwood

BECAUSE of its soft, absorbing nature and the absence of pitch and resin, Redwood is an ideal surface over which to paint. Paint should never be applied to Redwood unless the wood is absolutely dry. Redwood should not be painted, either on or immediately after a rainy day, as the wood absorbs moisture from the damp air.

Shellac should not be used on knots or sap in painting exterior Redwood. For interior painting knots and sap can be shellacked lightly, but not until the priming coat is applied. If shellac is applied directly to Redwood it is likely to scale. If shellac is used, thoroughly sandpaper the shellac before applying the paint.

No permanent job of painting on any kind of wood should have less than three coats.

Priming or First Coat

The priming or first coat should be mixed thin and with sufficient oil to satisfy the absorbing power of the wood, and only enough pigment to provide a foundation.

Formula:

White lead	100 Lbs.
Raw Linseed Oil	7 Gals.
Turpentine	1/2 Gal.
Litharge Drier	1/2 to 3/4 Lb.

(Covers 300 square feet.)

(Note: Use litharge only in damp weather. Drier should not be used in hot weather.)

(Note: White lead varies in brands—the older the lead the more oil it will absorb. Formulæ given in this book are based on 12-year lead.)

Litharge should be well mixed with turpentine before adding it to the paint.

If Japan drier is desired, use one gill of good Japan drier instead of the litharge stated above. When Japan drier is used the paint should be stirred frequently to keep it in proper solution.

The priming coat must have from 5 to 7 days to dry, and not less than 12 days in case the surface is exposed to rains or dampness.

Never use yellow ochre for priming—it dries too hard, has no elasticity and the second coat cannot adhere properly. Fifty per cent imported French silica ochre, ground in oil, can be used with safety—the other 50 per cent being white lead. Under no condition use white ochre on surface or planed material. Imported French silica ochre is permanent in color and *extremely durable* in wearing qualities. It is also very useful and valuable in mixing or tinting pigment. On rough barns, fences, etc., it has no equal; both yellow and white ochre can be used on rough surfaces.

Second Coat

After all nail holes, etc., are well puttied with pure linseed oil putty (not glazier's putty) the work is ready for the second coat. This coat should be colored the shade the work is to be when completed.

Formula:

White Lead	100 Lbs
Raw Linseed Oil	3 Gals
Turpentine	1 Gal
Color ground in oil	

(Greys and whites vary.)

The same amount of drier and time to dry should be given this coat as the priming coat.

This second coat should be well brushed out—the brushing excludes the air and allows the paint to dry hard and uniform. Much trouble with paint can be traced to improper application of the second coat.

Third Coat

The third coat, in addition to being the finishing coat, must withstand the elements—heat, cold, humidity, rain or snow, salt air on the sea coast, etc.—and it should be mixed accordingly. Consideration should also be given in mixing the third coat as to whether the exposure is north, east, south or west. The wearing power of paint is always poorest on the southern exposure, where it is subjected longest to the rays of the sun. In

some sections paint will last only one-quarter as long on a southern exposure as it will on the north side.

The following formula should be used where there is a hot climate and on southern or sun exposures :

White Lead 100 Lbs.
Raw Linseed Oil 3½ to 4 Gals.
Turpentine ½ Gal.
(Covers 250 square feet.)

For northern exposure add an additional one-half gallon of turpentine.

The following formula should be used along the sea coast or where salt air is encountered :

White Lead 75 Lbs.
Pure French Green Seal Zinc,
ground in oil 25 Lbs.
Raw Linseed Oil 3½ to 4 Gals.
Turpentine ½ Gal.
(Covers 250 square feet.)

For a cheap paint to be used on barns, fences, sheds, etc., ochre can be substituted for white lead, and distillate used instead of turpentine. These substitutes, however, do not produce the same lasting results as a moderate priced prepared barn paint made of red oxide and linseed oil.

Prepared paints of standard quality, if properly applied, according to printed instructions on the package, also produce splendid results on Redwood.



Paneled bedroom in "The Home of Redwood," Panama-Pacific International Exposition, San Francisco, 1915. The "Home of Redwood" was awarded the Grand Prize, the highest honor bestowed

Best for White Enamel

Redwood can be sanded to a smooth surface, and there is no trouble with raised grain. For this reason it is highly preferred by painters for white enameling. It not only absorbs and holds paint well, but makes a glassy, smooth finish possible. For white enameling two coats of preparatory paint and one of enamel will make a serviceable job. Three coats of preparatory paint and one of enamel will do a good job, while five coats of preparatory paint and one of enamel will make a high-class job.

Redwood Interior Trim

For interior finish Redwood should not be painted any more than you would cover oak or mahogany. Redwood's beauty for interior finish lies in its individuality, its soft, warm tone and color possibilities.



Redwood paneled hall and stairway. Even this small picture suggests the beauty of the large panels. Redwood gives that "homey" effect.

Redwood will add charm to the farm house. In its natural color Redwood ranges from light cherry to mahogany.

Finished in its natural color, waxed, it gives a soft and cheery effect. In natural finish a paste filler may be used, but it is not necessary.

It can be stained to any color desired by stains for exclusive use on Redwood. These stains are cheap, and can be applied successfully by any painter of ordinary intelligence who follows instructions. Only two coats of stain are required. Further particulars about staining Redwood will be furnished on request.

There isn't anything prettier than the paneled room. You can idealize with Redwood panels. The "slash grain" Redwood panel yields wonderful effects, both in its natural finish, waxed, as well as stained to any color desired. The "slash grain" as distinguished from the "vertical grain" is a figure produced on the panel by sawing with the grain instead of at right angles to it. It produces a wavy effect, contrasted to the straight, close lines in the "vertical" cut.

When you finish your house in Redwood you finish it with lumber and not a veneer.



The charm of a Redwood home. Note the beauty of the panels. This room is finished in the natural color by waxing

Redwood

"stays put"

when it's dry



WHEN properly cured, California Redwood can be depended upon to "stay put."

All lumber will shrink when "green"—which means before it has been seasoned by drying either in the air and sun, or in artificially heated kilns or giant ovens.

Redwood is cured both by air drying and by artificial heat in kilns. Where Redwood is intended for interior use see that it is properly seasoned, which means thoroughly dry. Thoroughly dry Redwood will not shrink, warp or swell.

No set rule can be given to determine whether Redwood is thoroughly dry. A good test is to saw off a piece, which should show a uniform dryness. If there is a moist spot on the inside, it is not thoroughly dry.

Where Redwood is intended for rough outside use it is not necessary that it be seasoned or dry. The natural moisture in Redwood is a preserving agency.

Redwood is used for such delicate purposes as organ pipes—and it is needless to tell you that the slightest shrink, warp or swell in an organ pipe would be disastrous to the tone of the instrument.

Read what General Manager A. E. Streetor, of the California Organ Company, Los Angeles, writes:

"The principal advantage to us is the absolute assurance that our work is going to stay 'put' after completion. For instance, a Redwood pipe does not expand or contract under a great variety of climatic and atmospheric conditions. This is extremely essential, inasmuch as the cubical area of the pipe concludes the pitch, and should a

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pipe move from its fixed position,
an instrument would move slightly
out of pitch.

"In the wind chests of an instru-
ment we find Redwood to be of ex-
ceptional value, inasmuch as there
are hundreds of small felt and
leather valves. Should the wood ex-
ude pitch, these tiny parts would
stick and refuse to work.

"It is also of advantage in wind
chest work, because it is essential
that these chests should be air-
tight, and the possibility of checking
is minimized in the use of properly
dried Redwood."

Also read the letter from the President of the Petaluma Incubator Company, which will be found under "Redwood Incubators," on pages 31-32.

These are the highest possible tests of Redwood's "staying put" quality!



The Redwood stump has maternal instincts. It not only nourishes the "suckers" or "shoots" that grow into giant Redwoods, but in the above illustration you see a Redwood stump that has mothered a maple tree. This remarkable incident is found in front of the Scotia Hotel, in Scotia, Cal. The maple tree is 32 inches in diameter and 30 feet high. The maple is apparently very happy, for it is a vigorous, healthy tree

R E S I S T S F I R E

Culverts, cesspools, septic tanks, sub-soil drains

FOR lining cesspools, or for culverts and sub-surface drains, Redwood is cheaper and more serviceable than other materials.

These are requirements on practically every ranch or farm, and the farmer is naturally desirous of making installations that cost the least and last the longest.

There are instances of Redwood tanks and pipe, buried in the ground from 25 to 50 years, and are today in perfect preservation and continuous use. In building culverts and pipe, see that the steel bands are properly protected.

For sub-surface drainage Redwood is cheaper than porous tile. Its resistance to rot makes it last years. For one method of installing see letter below, the experience of a practical farmer:

STANDISH & HICKEY LTD

San Francisco, Cal., July 27, 1916.

California Redwood Assn.,
San Francisco.

GENTLEMEN:

Referring to yours of July 6th, regarding use of Redwood boxes for drainage on my ranch—

I have found it profitable to use Redwood boxes in several thousand feet of drains. The ditches are about five feet deep, the soil is of such character they would rapidly fill unless tile or some substitute was put in.

Knowing the lasting qualities of Redwood in the ground, we have put in boxes, without bottoms, using a No. 2 grade of common Redwood, without sap.

The interior capacity of the boxes would run from 30 to 100 square inches.

The cost of this box, compared with tiling, is far cheaper, and, of course, the boxes can be much more expeditiously laid.

Respectfully yours,

MILES STANDISH

Redwood's natural resistance to rot in contact with the ground also makes it a splendid material for septic tanks.

These tanks are made of 3-inch Redwood, with ship-lap joint. In some soil 2-inch Redwood would be sufficient, but

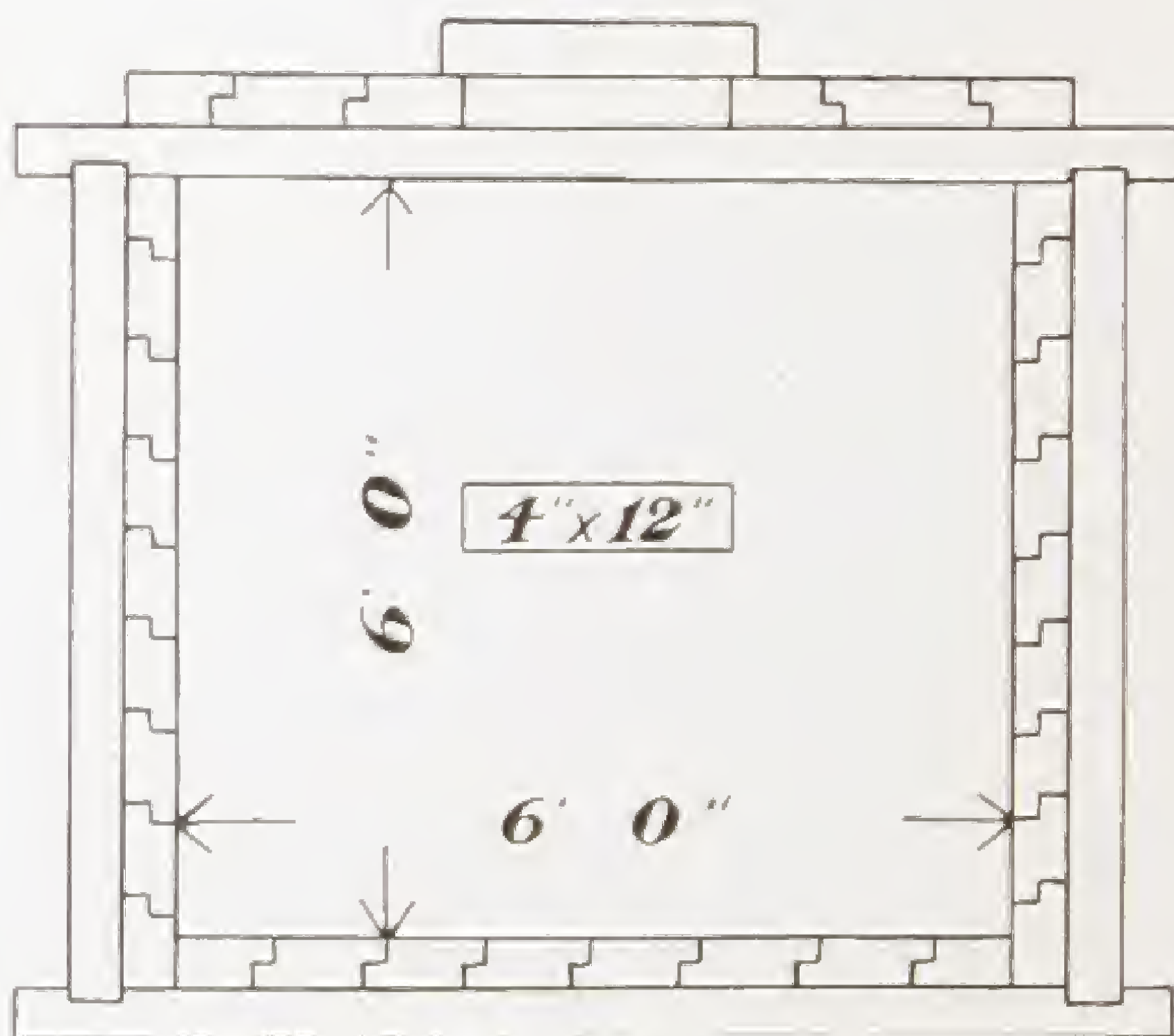
3-inch is recommended, as it produces a better tank in every way.

The septic tank should be sunk in the ground to a depth of 12 inches under the surface. This makes the tank air-tight, which is necessary for the proper action of the tank.

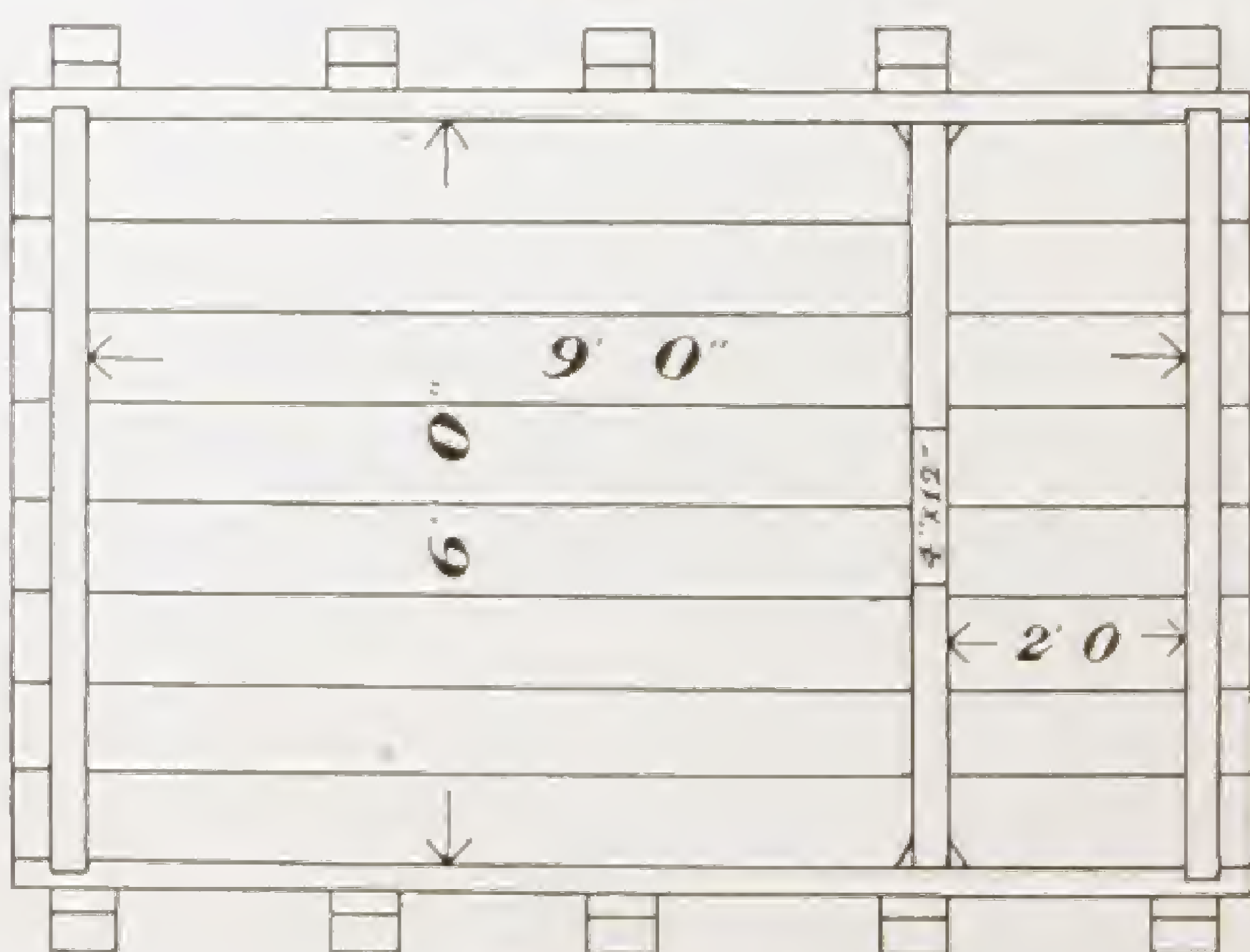
These tanks can be built to take care of any size house. The construction is comparatively simple, as will be seen by the accompanying diagrams.



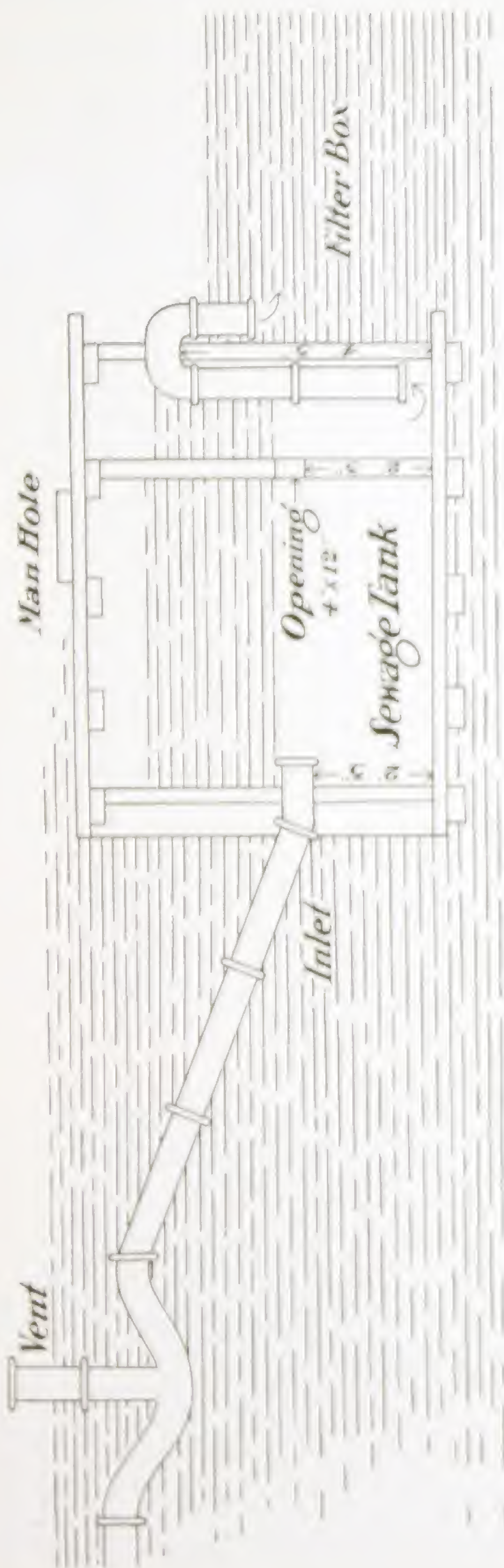
Side



End



Bottom



Long life sheds for implements

IF YOU can prolong the life of farm implements by protecting them under an implement shed, you will make a profit on that shed equal to the cost of the implement multiplied by its added length of life!

It is estimated that the average life of farm machinery standing in the open is 5 years, while machinery protected by a shed is serviceable from 20 to 25 years.

Are you protecting your implements?

On an average investment of \$1,000 per farm for machinery, an implement shed costing \$250 will prolong the usefulness of the implements equivalent to a saving of \$1,800. Implement sheds can be built by farm labor. They are simple structures, in two types—the open shed and the wide, enclosed type.

Use Redwood for the mud sills, the frame, siding, and Redwood shake for the roof—then your shed will last as long as the implement.

Remember—Redwood saves the cost of painting, if desired.



A Redwood implement shed—The kind that lasts.

Why it excels for incubators



IN THE manufacture of incubators Redwood is more generally used than any other wood. This is because it is not affected by the difference in temperature between the inside and the outside of the incubator. Also because it will not shrink or warp and will perfectly withstand any test of climatic conditions.

*Petaluma, California,
September 30, 1916.
California Redwood Association,
San Francisco, Cal.*

DEAR SIR:

"Before coming to California the writer used pine and other woods grown in Canada, but on coming to California Redwood was the most convenient to secure and it proved to be a very happy result, for the Redwood used in these goods never shrinks or swells and hence when we make good close joints to begin with, it remains so. Incubators made by us nearly forty years ago are still in use and, so far as the joints are concerned, they are as close now as when the machines were first constructed.



A Redwood incubator. Read the above letter

CALIFORNIA

"In our experience there is no wood which has come within our range that can equal or approach California Redwood for making Incubators and Brooders, and so thoroughly were we convinced of that, more than thirty-five years ago, that in all the time since we have not used other lumber.

"We have found that in shipping our goods to the Philippine Islands, Australia, India, South Africa, South American countries, such as Argentina, Uruguay, Brazil, Peru and Chili, that the Redwood exceeds the ratings of the steels, such as the best white oak. These steels, which were so often making a breakfast of other kinds of wood, will not touch the Redwood.

"In addition we have shipped to almost every place on the globe. Our Incubators are used in Japan, too, in China, Egypt, in many of the islands of the Pacific and Atlantic Oceans, and in the countries north of us, such as Mexico, Guatemala, Nicaragua, and even in the Canal Zone at the Isthmus. In some of these tropical sections we tested the climate conditions of living in our kind of wood.

"There is no material superior to Redwood."

Respectfully,
WILLIAM L. COOPER
CHIEFMAN

(Signed) J. C. Burt,
President



Reminiscent of days gone by, this farm, known for its fine produce, is now a part of the history of the region.

RESISTANCE

Redwood is best for silos

BULLETIN No. 100, on the suitability of various woods for silos, issued by the Iowa State Agricultural Experimental Station, lists them in the following order:

1. Redwood
2. Cypress
3. Oregon Fir
4. Tamarack
5. White Pine
6. Long Leaf Yellow Pine

This investigation was made with painstaking care and took into consideration the living power of the wood, its resistance to the action of the acids in silage, its warping and shrinking proclivities, its cost, its weight and all other features that enter into the most suitable material for a silo stave. As this investigation was conducted by farm experts who had no financial or other interests in any of the woods they were investigating, the farmer will recognize that their judgment is based upon an honest opinion formed with an open mind as the result of a careful study of experience with each of the woods named.

Bulletin No. 7, of the Connecticut State Agricultural College, advises farmers that if they would secure the best results from a silo the walls should be—

“non-conducting to heat, cold and moisture. Silage undergoes a ripening, somewhat similar to the ripening of cheese, which softens the fibers, makes more digestible the proteins, and adds new and agreeable flavors.

“There are advantages in the wooden silo over any other kind. In the first place wood is a poor conductor of heat. It conserves the warm temperature at the beginning of fermentation so the proper acid is formed, and prevents largely the freezing of silage. Second, silage keeps best against wood, and nothing is lost around the edges.”

Redwood meets these conditions.

Wood Silo Preferred

The first question you must decide is—shall I build of wood, concrete or clay products? It is to your interest to build as economically as possible, of a material that cures silage the best, and will last for years at the smallest up-keep cost. That means you will build of wood.

A canvass made of the State of Kansas shows that there are 10 wood silos to one of other materials, the canvass resulting as follows:

“4,700 wood stave silos; 400 wood 2x4 known as Common Sense; 50 built of floorings; 5 Buff Jersey type; 160 monolithic concrete; 125 metal lath; 100 cement stave; 20 hollow tile; 100 galvanized iron; 40 pit, or hole-in-the-ground, and 15 brick.”

The Kansas farmer is generally recognized as a very shrewd individual. Furthermore, the silo in Kansas, by reason of the open prairie country, is subjected to the fierce heat of the summer, the bitter colds of the winter, hurricane winds, heavy snows, etc.

The fact there are 10 wood silos to one of concrete or clay products in Kansas demonstrates that the Kansas farmer has learned by experience that wood is the most serviceable material for the silo, as well as the best container in which to cure silage.



A typical Redwood silo and barn

15 advantages of the Redwood silo

1. Clear staves with minimum shrinkage.
2. Resists rot.
3. Is fire resistant.
4. Is light and sufficiently strong to stand the greatest possible pressure that can be developed in the silo.
5. Does not have to be painted.
6. Cheapest to build.
7. Shipped ready to put up.
8. Can be taken down and moved.
9. Defective staves can be replaced at small cost.
10. If blown down or collapsed, can be restored with farm labor.
11. Good for 50 years or more of service.
12. Cures silage best because it is a non-conductor of heat and cold.
13. Redwood does not have to be protected with tar or other preservative on the inside of the silo, and which contaminates the silage in contact with it.
14. Redwood does not contain resin or pitch, nor exude gum or oil to contaminate the silage. Silage cured in a Redwood silo is sweet and good from wall to wall—there is no rotten or spoiled silage to be wasted.
15. Redwood is absolutely dependable.

The so-called "permanent type" of silo, which includes concrete, tile, brick, etc., has these disadvantages:

More expensive to build.

If concrete, it requires building practically a double wall wood silo for the concrete form.

Cannot be moved. A crack affects the whole structure, making it costly to repair, if it can be repaired.

Concrete silos must be coated on the inner wall to prevent the silage attacking the lime in the concrete.

Concrete conducts heat and cold, allowing the silage to freeze in winter, and also dissipate the natural heat of the silage that is necessary to its proper cure.

Concrete is porous and allows the moisture from the silage to transude and evaporate. This admits air that rots the silage next to the inner wall.

If blown over, or collapsed, it is a total loss.

Redwood stakes and fence posts



BECAUSE of its wonderful durability in contact with the ground there is no wood like Redwood for stakes and fence posts. It is used almost exclusively in the vineyards and ranches of California.

Enormous quantities of Redwood stakes are set annually in the vineyards and hop fields of California. These stakes are split and come in two sizes, 2 x 2 in. and 6 ft. and 2 x 2 in.—8 ft.

Redwood split posts come standard 4 inches x 5 inches and 7 feet long. Sawn posts come in lengths of 6 feet, 7 feet and 8 feet, and 3 inches x 4 inches, 4 inches x 4 inches and 4 inches x 6 inches.

The wonderful durability of Redwood in contact with the ground was recognized by the Lincoln Highway Commissioners of the west when they selected Redwood for marking posts for that part of the roadway between Salt Lake City and San Francisco, a distance of 1000 miles. Each mile of this distance is to be marked with a Redwood post.

The Highway Commission had before it is a proposition to mark this highway with boiler tubes set in a concrete base, but it was found that, in addition to the expensive setting-up cost the boiler tubes could not be guaranteed to stand as long as the Redwood post, which, without any attention, is good for 25 years and upward.

The overland traveler in an automobile is therefore welcomed to California

by a thousand miles of Redwood posts that guide him to the land of "big trees," golden rivers, and the most wonderful lumber in the world—Redwood.

Fruit Trays

In the great fruit-growing sections of California the Redwood tray is used for sun-drying fruits.

These trays are made of Redwood. They are set on the ground with the fruit in them, and are thus exposed, during the curing process, to the hot rays of the sun.

Setting on the moist ground they are naturally subjected to curling or warping on account of the conflicting strain set up in the fiber of the wood by the varying degrees of dryness on both sides—and Redwood stands this strain without sacrifice of shape.

In addition, Redwood is light and easy to handle.

Bee Hives

Redwood is without question the wood best adapted for bee hives.

Its light weight, easy working and its ability to hold tight joints regardless of alternating conditions in the atmosphere, as well as its durability without protection of preservatives, make it a material which, when used in the bee hive, can be depended upon to last a life-time.

Redwood is odorless and tasteless and has no deleterious effect on the honey.

Bee hive stock in Redwood is obtainable in cut lengths according to specifications desired.

How to buy Redwood to best advantage

REDWOOD is without doubt the best adapted and most useful wood for the farm or ranch.

The wise farmer is as much interested in his farm buildings as he is in his growing crops. He is constantly in need of lumber.

There are ways of saving money in the purchase of lumber. For instance, never be afraid of a short length. The short length and narrow stock is available at attractive prices, and it is the handiest kind of lumber to buy for tinkering.

The cost of lumber increases with the length and the width of the board. If you want two 8-foot lengths of a 12-inch board, don't buy a 16-foot 12-inch board and saw it in two. It pays to buy four 8-foot lengths of 6-inch stock, providing the joint is not objectionable. Short, narrow lumber is, as a rule, better than long lengths. Because of its small size it admits fewer and smaller defects. The longer and wider a board the larger in size and number are defects allowed.

A Wicked Extravagance

A wicked extravagance of the American public is its demand for long, clear stock in lumber. A knot or knot-hole, a split or sap streak seems to create a feeling that full value is not secured. This means that lumber mills have a bigger demand for upper grades, and always have an accumulation of short-length, narrow stock, which is sold at a sacrifice.

Fortunes are being made by far-seeing manufacturers who buy low grades, cut out the knots and defects and turn out absolutely clear refined products, such as door and window casings, frames

and hundreds of other articles on the market.

Something About Grades

Redwood lumber is manufactured and sold according to standard grades. The price you pay for lumber depends upon the grade. If it is an "upper" grade, consisting of clear and sound stock, in standard lengths of from 10 to 20 feet, as Redwood comes, you pay higher prices. If it is in the "common" grades, which include lumber that has defects such as knots, shakes and splits, sap, etc., it can be purchased at a much lower price.

The thing for you to keep in mind, Mr. Farmer, is that this so-called "common" lumber is the economical wood for use on the farm. There is no difference in the lasting and fire-resisting qualities between the low grades and the high grades of Redwood lumber.

The "upper" grades in Redwood are

"Clear,"

"Sap," "Select," or "A" (less expensive than "clear" and just as good when painted),

"Standard," or "B."

The "common" grades are

"Extra Merchantable,"

"Merchantable,"

"Construction."

There are other grades known as "shop common," "sub-flooring" and "sheathing stock," which are for special purposes. The "shop common" must contain 50 per cent of stock clear on both sides, and is intended for manufacturing purposes. Sub-flooring and sheathing stock admits defects that render the same material unfit for substantial construction work, but do not impair its usefulness and desirability for sub-flooring or sheathing.

The grade of "construction" is designated especially to meet the demand for Redwood lumber suitable for the ordinary construction purposes. Buy it for the farm.

For cheap barn siding you can buy rustic, or drop siding, which costs less than 1 x 12-inch boards. It gives greater satisfaction, and battens are not necessary. It is made from 1 x 6, 1 x 8 and 1 x 10-inch boards.

For flumes use Redwood Extra Merchantable grade.

For fence posts Redwood Merchantable grade is satisfactory in the sawn posts, or, if a split post is desired, the 4 x 5-inch, 7-foot, should be used.

For silos the best grade of clear on one face Redwood is recommended.

Redwood Is Not Expensive

Redwood is not an expensive wood, particularly in the so-called common grades. If a slight premium is asked for Redwood in eastern territory, it is worth it in its wonderful living power and resistance to fire.

WRITE US

The California Redwood Association has been organized by the manufacturers of this remarkable lumber for the purpose of supplying the public with accurate and dependable information about Redwood.

Write us for information. Your letter will receive prompt and cheerful attention.

CALIFORNIA REDWOOD
ASSOCIATION,
(Dept. "F")
713 Call Building,
San Francisco, Cal.

Write for free copy of the Child's Story of the "big trees" of California. There's one for every child in the nation

